

## QUESTION 1: [9 Marks]

### Multiple-Choice Questions:

1. Why was the OSI model developed?
  - a. manufacturers disliked the TCP/IP protocol suite
  - b. the rate of data transfer was increasing exponentially
  - ☒ c. standards were needed to allow any two systems to communicate
  - d. None of the choices are correct
2. In the OSI model, as a data packet moves from the lower to the upper layers, headers are:
  - a. added
  - ☒ b. removed
  - c. rearranged
  - d. modified
3. In the OSI model, when data is transmitted from device A to device B, the header from A's layer 5 is read by B's \_\_\_\_\_ layer.
  - a. physical
  - b. transport
  - ☒ c. session
  - d. presentation
4. \_\_\_\_\_ control means including a mechanism for detecting corrupted, lost, or duplicate packets.
  - a. flow
  - ☒ b. error
  - c. congestion
  - d. None of the choices are correct
5. The Internetworking Protocol (IP) is a \_\_\_\_\_ protocol.
  - a. reliable
  - b. connection-oriented
  - c. reliable and connection-oriented
  - ☒ d. None of the choices are correct
6. \_\_\_\_\_ provides full transport layer services to applications.
  - ☒ a. TCP
  - b. UDP
  - c. ARP
  - d. None of the choices are correct
7. The \_\_\_\_\_ address, also known as the link address, is the address of a node as defined by its LAN or WAN.
  - a. port
  - ☒ b. physical
  - c. logical
  - d. None of the choices are correct

8. A port address in TCP/IP is \_\_\_\_\_ bits long.
- a. 32
  - b. 48
  - ☒ c. 16
  - d. None of the choices are correct
9. What command would be used at the system prompt to compile a Java program using the Java Development Kit (JDK)?
- a. java
  - b. javac
  - ☒ c. javac
  - d. jvm
10. What Java package contains classes that support network programming?
- a. java.packer
  - b. java.network
  - ☒ c. java.net
  - d. java.awt
11. Java Virtual machine interprets and executes \_\_\_\_\_.
- a. rce code
  - b. pseudocode
  - ☒ c. bytecode
  - d. methods
12. A finally block is always required when using try and catch blocks.
- a. TRUE
  - ☒ b. FALSE
13. Only one catch block can be associated with a given try block.
- a. TRUE
  - ☒ b. FALSE
14. A finally block is executed only if the catch block is executed.
- a. TRUE
  - ☒ b. FALSE
15. The try block includes statements that are executed when an exception occurs.
- a. TRUE
  - ☒ b. FALSE
16. Java source code is stored in a file with a .class suffix.
- a. TRUE
  - ☒ b. FALSE
17. An IPv4 address is \_\_\_\_\_ bits long.
- a. 16
  - b. 128
  - ☒ c. 32
  - d. None of the choices are correct



18. In class C<sub>v</sub>, the netid is between \_\_\_\_\_

- a. 0 to 127
- b. 128 to 191
- ☒ c. 192 to 223
- d. None of the choices are correct

QUESTION 2: [2 Marks]

a) How can I find out the current IP address for my machine? [1 Mark]

//write the code

```
1. InetAddress a = InetAddress.getLocalName();  
2. System.out.print("IP address: " + a.getHostAddress());
```

b) In the following code, what will be the output if the correspondent IP address of www.javatpoint.com is 216.151.23.23? [1 Mark]

```
//InetDemo.java  
import java.io.*;  
import java.net.*;  
  
public class InetDemo{  
    public static void main(String[] args){  
        try{  
            InetAddress ip = InetAddress.getByName("www.javatpoint.com");  
            System.out.println("Host Name: " + ip.getHostName());  
            System.out.println("IP Address: " + ip.getHostAddress());  
        }  
        catch(Exception e){  
            System.out.println(e);  
        }  
    }  
}
```



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```
Host name: www.javatpoint.com  
IP Address: 144.76.11.18  
Press any key to continue...
```



QUESTION 3: [4 Marks]

- a) What is meant by a socket, and what class is used to create a UDP socket in Java? [1 Mark]

mechanism that provides endpoint communication

DatagramSocket

- b) Briefly discuss two commonly used constructors by DatagramSocket class, and two commonly used constructors by DatagramPacket class? [2 Marks]

- c) The following is an example of sending DatagramPacket by DatagramSocket, comment the specified lines (marked with "//")? [1 Mark]

// Sender.java

// importing net **Package** to use its member  
import java.net.\*;

public class DSender {  
 public static void main(String[] args) throws Exception {

// Creating a new datagram socket named ds

DatagramSocket ds = new DatagramSocket();  
String str = "Welcome Java";

// Getting the name of the host by the mentioned IP address  
InetAddress ip = InetAddress.getByName("127.0.0.1");

// Creating a new datagram packet  
DatagramPacket dp = new DatagramPacket(str.getBytes(), str.length(), ip, 8080);

// Sending

ds.send(dp);

// close the socket

ds.close();  
}

getting str's length  
as array of bytes  
getting its IP  
address and  
port number